

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A defect data analysis method comprising the steps of:
obtaining defect position information positions by inspecting a substrate with an inspection apparatus, wherein the substrate is processed in a process of circuit pattern formation on the substrate;
storing the obtained defect position information in memory;
processing the defect position information stored in the memory using a processor;
obtaining distribution of defects on the processed substrate from the processed defect position information obtained;
classifying the obtained defect distribution of defects characteristics into [[any]] one of ~~the following~~ a plurality of distribution shape characteristic categories by using a defect distribution shape classifier and the processed information on the defect position information, wherein the plurality of distribution shape characteristic categories comprises on the processed substrate : repeated defects, clustered defects, arc-shaped regional defects, radial regional defects, line type regional defects, ring and blob type regional defects and random defects defect; and
displaying, on a display screen, the classified distribution of defects, wherein the distribution shape characteristic categories are each displayed results by using different colors for respective categories.
2. (Currently amended) A defect data analysis method as claimed in claim 1,
further comprising: wherein
detecting the arc-shaped regional defects are detected by obtaining a center candidate point of the defect distribution of defects from the defect distribution characteristic on

[[the]] Cartesian coordinates and extracting the arc-shaped regional defects from corresponding [[a]] polar coordinate information ~~on each defect~~ using the center candidate point as an origin.

3. (Currently amended) A defect data analysis method as claimed in claim 2 [[1]], wherein the center candidate point of the defect distribution of defects is extracted as a point having more intersections of perpendicular bisectors of straight lines connecting arbitrary two arbitrary defects among the defects distributed on the processed substrate.

4. (Original) A defect data analysis method as claimed in claim 1, wherein the defects classified into the arc-shaped regional defects are judged to be scratches generated by CMP (chemical mechanical polishing).

5. (Currently amended) A defect data analysis method as claimed in claim 1, wherein the radial regional defects are detected by creating distribution data on a $p-\theta$ space based according to the information on information associated with the Cartesian coordinate space of the defects distributed on the processed substrate on Cartesian coordinate space and extracting the radial regional defects from the distribution data on the $p-\theta$ space.

6. (Currently amended) A defect data analysis method as claimed in claim 5, further comprising: wherein

converting the information associated with [[on]] the defects distributed on the processed substrate on the Cartesian coordinate space ~~is converted~~ into the defect position information on the polar coordinate space by using:

a ~~the information on the~~ distance between a [[the]] straight line connecting arbitrary two arbitrary ~~of the defects distributed~~ on the processed substrate and an [[the]] origin of the Cartesian coordinate space, and

an ~~information on the~~ angle defined by an [[the]] X axis and a [[the]] perpendicular drawn from the origin of the Cartesian coordinate space ~~coordinates~~ to a straight line connecting arbitrary two arbitrary [[of]] defects.

7. (Currently amended) A defect data analysis method comprising the steps of:
obtaining defect distribution information of the defects on a [[the]] processed substrate from defect position information, wherein the defect position information is obtained by inspecting the [[a]] processed substrate with an inspection apparatus, the substrate being processed in a process for forming a circuit pattern on the substrate;

storing the obtained defect distribution information in memory;

processing the stored defect distribution information using a processor;

identifying repeated defects by using the ~~processed~~ obtained defect distribution information, wherein the repeated defects are defects which are distributed on the substrate in a repeated pattern;

identifying clustered defects by using the ~~processed~~ obtained defect distribution information, wherein the clustered defects are defects which are distributed on the substrate in a cluster;

identifying arc-shaped regional defects by using the ~~processed~~ obtained defect distribution information, wherein the arc-shaped regional defects are defects which are distributed on the substrate in an arc-shape;

identifying radial regional defects by using the ~~processed~~ obtained defect distribution information, wherein the radial regional defects are defects which are radially distributed on the substrate;

identifying line type regional defects by using the ~~processed~~ obtained defect distribution information, wherein the line type regional defects are defects which are linearly distributed on the substrate;

identifying ring and blob type regional defects by using the ~~processed~~ obtained defect distribution information, wherein the ring and blob type regional defects are defects which are distributed on the substrate in a ring and blob shape;

identifying ~~extracting~~ random defects by using the ~~processed~~ obtained defect distribution information, wherein the random defects are defects which are randomly distributed on the substrate; and

processing information associated with the identified defects using the processor, wherein the information is processed to classify differently identified defects into different defect distribution categories; defect information obtained from the step of identifying the repeated defects to the step of identifying the random defects and

displaying the processed information on a display screen, wherein the processed information is displayed such that the different defect distribution categories are displayed [[by]] using different colors.

8. (Currently amended) A defect data analysis method as claimed in claim 7, wherein displaying the processed information comprises:

processing step is realized by displaying the processed defect information in a wafer map format on the display screen.

9. (Currently amended) A defect data analysis method as claimed in claim 7, wherein ~~in the step of identifying arc-shaped regional defects and in the step of identifying radial regional defects,~~ the arc-shaped regional defects and the radial regional defects are identified [[by]] using defect polar coordinate information created according to the obtained defect distribution information.

10. (Currently amended) A defect data analysis method comprising the steps of:
creating a wafer map showing positions of ~~all the~~ defects on a coordinate system based on a [[the]] wafer origin reference according to [[the]] defect data including at least a defect position coordinate table of defects obtained by inspecting a processed substrate with an inspection apparatus, wherein the substrate is processed by in a process for forming a circuit pattern on the substrate;

storing the wafer map in memory; and

processing the wafer map stored in the memory using a processor, wherein processing the wafer map comprises:

weighting a point where a perpendicular of arbitrary two arbitrary defects from the wafer map passes according to a [[the]] distance between the two arbitrary defects, [[and]]

voting the point onto Cartesian coordinate the xy space, [[;]]

detecting Cartesian coordinates (x,y) corresponding to a [[the]] maximum value on the voted space, [[;]]

polar-coordinate-converting the wafer map onto [[the]] r θ space [[by]] using the detected Cartesian coordinates (x,y) as an [[the]] origin, [[;]] and

identifying an arc-shaped regional defect according to a horizontal segment detected in a the aforementioned polar coordinate converted state.

11. (Currently amended) A defect data analysis method comprising the steps of:
creating a wafer map showing positions of ~~all the~~ defects on a coordinate system based on a [[the]] wafer origin reference according to [[the]] defect data including at least a defect position coordinate table of defects obtained by inspecting a processed substrate with an inspection apparatus, wherein the substrate is processed by in a process for forming a circuit pattern on the substrate; [[;]]

storing the wafer map in memory; and

processing the wafer map stored in the memory using a processor, wherein processing the wafer map comprises:

weighting p, θ coordinates corresponding to a segment connecting arbitrary two arbitrary defects from the wafer map according to a [[the]] distance between the two arbitrary defects, [[and]]

voting the p, θ coordinates, ~~them;~~ and

detecting a plurality of peaks on the voted coordinates, space and

when concentration of voting to a predetermined range around p=0 exceeds a predetermined threshold value, identifying a radial regional defect according to the peaks contained in the range.

12. (Currently amended) A defect data analysis apparatus comprising:
input means for inputting defect position information ~~on the defect positions~~
obtained by inspecting a processed substrate, wherein the substrate is processed by in a process
~~for forming a circuit pattern on the substrate;~~

defect distribution calculation means for obtaining distribution of ~~[[the]]~~ defects
on the processed substrate from the defect position information ~~on the defect positions input~~
~~from the input means;~~

defect distribution shape characteristic category classification means ~~for, by using~~
~~the defect position information on the processed substrate,~~ classifying the defect distribution of
defects characteristic obtained by the defect distribution calculation means into ~~[[any]]~~ one of a
plurality of distribution shape characteristic categories comprising: repeated defects, clustered
defects, arc-shaped regional defects, radial regional defects, line type regional defects, ring and
blob type regional defects, and random defects, wherein the classifying is performed based on
the defect position information; and

output means for outputting ~~the information on the~~ classified defect distribution of
defects ~~classified by the defect distribution characteristic category classification means.~~

13. (Currently amended) A defect data analysis apparatus as claimed in claim 12,
wherein the output means includes a display section for displaying ~~the information on the~~
classified defect distribution of defects, wherein the distribution shape characteristic categories
are each displayed ~~classified by the defect distribution characteristic category classification~~
~~means by using a different color colors for the respective distribution characteristic categories.~~

14. (Currently amended) A review system comprising:
an inspection apparatus for scanning a surface of a processed substrate by light or
electronic beam ~~[[so as]]~~ to detect inspect a foreign matter or a pattern defect on the processed
substrate and outputting defect data comprising ~~containing~~ at least position coordinates of the
detected foreign matter or the pattern defect; and

a defect data analysis apparatus ~~for, by using the defect position coordinate~~
~~information contained in the defect data output from the inspection apparatus,~~ obtaining a defect

distribution shape characteristic using the position coordinates and for classifying the defect distribution shape characteristic into ~~[[any]]~~ one of a plurality of defect ~~[[the]]~~ distribution shape characteristic categories, wherein the plurality of defect distribution shape characteristic categories comprises: repeated defects, clustered defects, arc-shaped regional defects, radial regional defects, line type regional defects, ring and blob type regional defects, and random defects,

wherein an image of each ~~[[the]]~~ defect distribution shape characteristic ~~classified~~ by ~~the defect data analysis apparatus~~ is acquired by the light or the electron beam and reviewed.

15. (Currently amended) A review system as claimed in claim 14, wherein the defect data analysis apparatus creates a report of ~~according to the review result by the review apparatus and the~~ classified ~~information on the~~ defect distribution shape characteristics ~~pattern~~ ~~classified by the defect data analysis apparatus.~~